

Description

Electrical Guide Rail Chain Bus

BACKGROUND OF INVENTION

[0001] Our national freeway system has become increasingly congested with traffic and it is getting worse and worse each year. One way to solve this problem is to build a public mass transportation system. Usually when we talk about the mass transportation system we talk about something like subway or metro link where these type of system has high carrying capacity with no worry about the traffic congested. But these type of transportation system will cost too much to build and maintain. What about bus? When we think about individual bus we consider it is public transportation vehicle but not a mass transportation vehicle because its low carrying capacity and short travel distance and it is subject to traffic also. Is there any other solution there? Electrical Guide Rail Chain Bus (EGRCB) may consider as an alternative solution to the traffic problem. EGRCB basically is a train like bus several buses chain together and run along a guide rail in each major freeway

at a special assigned most inner lane, it will use freeway center divider as a guide rail to guide and control the vehicle. EGRCB has high carrying capacity as subway but just a small fraction of cost compare to subway. EGRCB will use existing freeway road condition with minimum impact to the current infrastructure. If we have such system in each major freeway then EGRCB can create a public mass transportation grid in our freeway, people can go anywhere within this transportation grid by direct or transfer the EGRCB at stations. The station can be located at the intersection of the local street and freeway system, we can use exiting overpasses as a bridge or tunnel to lead people to the station which is located in the center divider area (Fig. 12 & 13). EGRCB will give people a choice to drive or not to drive and it will significantly reduce huge member of vehicles in our freeway system as a result to solve the traffic problems.

SUMMARY OF INVENTION

[0002] The object of the present invention is to integrate our public mass transportation system into our freeway system with minimum impact to existing infrastructure. The present invention accomplishes many advantages as following:

- [0003] a. The EGRCB system is low cost compare with subway but has the same kind of carrying capacity.
- [0004] b. EGRCB construction can be similar to railway where we can start build the system from two end of terminals and merge in midpoint. Construction material can be carried by EGRCB to the site so that construction period won't affect normal traffic and can work day and night.
- [0005] c. Since EGRB is running on the surface road so it is easy for passenger to evacuate during the emergency situation such as accident, fire or earthquake.
- [0006] d. The EGRB will use electricity for its power, which means it is environmentally friendly. Because the electrical cable is run along the center divider and hide under the protection cover so it very safe and easy for maintaining.
- [0007] e. The EGRCB can also provide a commercial deliver service to carry the container cargo to the city area in between the passenger car service.
- [0008] f. EGRCB can easily follow the curvature of freeway in both horizontal and vertical so it can adjust to all kind of freeway condition where is impossible for a train to do so.
- [0009] g. The opportunity to enrich people lives and communities through expanded public transportation. It also can stimulate the economy growth and provide more jobs.

BRIEF DESCRIPTION OF DRAWINGS

- [0010] Fig. 1 & 2 shows a 3D view of EGRCB in operation at an existing freeway with a modify center divider.
- [0011] Fig. 3 illustrates a schematic 3d view of EGRCB guide rail system.
- [0012] Fig. 4 illustrates EGRCB guide rail arm mechanism and shows how its joints work to adjust to all kind of road condition and to avoid generate large force into guide rail.
- [0013] Fig. 5 illustrates a section cut of new modify freeway center divider with guide rail and power line.
- [0014] Fig. 6 & 7 illustrates how bus makes a turn and how its mechanism work.
- [0015] Fig. 8 illustrates how EGRCB auto steering system works by redistribute the power to each wheel.
- [0016] Fig. 9 illustrates the EGRCB driving and breaking control system working concept.
- [0017] Fig. 10 & 11 illustrates guide rail switch concept.
- [0018] Fig. 12 & 13 shows a concept of EGRCB station at two different conditions.

DETAILED DESCRIPTION

- [0019] The Electrical Guide Rail Chain Bus (EGRCB) is a train like bus (Fig. 1 & 2) by connecting several of buses together

and guide by a rail and run as whole. Each bus will have two sets of tires one in the front one in the back of bus and each set of tires will have two control guide arms attached to its central rotated axial, at another end of control arms will have two set of pulley wheels which will run along the guide rail (Fig. 3). Each set of tire can rotate freely at its mid axial point relative to bus support frame and its control arm can rotate freely at each rotational joint to adjust the different road condition (Fig.4). Electrical motor will be embedding in side the each wheel and run independently, Motor will become part of wheel to provide the driving power for the bus. Each control arm will has a sensor to measure the how many reaction between the guide rail and control arm and send this information to power distribute control device unit so that electrical power will redistribute among each tire to counter that unbalance force (Fig. 8). Vehicle will continuously to balance the force between the two control arms and two tires as a result to minimize the force in the guide rail; this continuous force balance process will lead the chain bus to follow the guide rail automatically and create an autopilot driving system (Fig. 9). This same concept will work for vehicle breaking system just in a revised

process. The break system will combine two kind of breaking systems together, the first one is use its electrical motor magnetic field and second one will use traditional mechanical breaking system. The whole concept is that when we press the break pad half way then only the electrical magnetic breaking system working, when we press the break pad all the way to the end then the mechanical breaking system will start to work, the benefit of this concept is that the electrical magnetic breaking is control by computer so it will function as ABS system. Because we use magnetic field to slow down the vehicle so we don't have mechanical wearing problem so less maintain for breaking system, this is very important for the heavy bus that have to stop and go all the time and this breaking system will work perfectly for this application. EGRCB will run following a modify freeway center divider (Fig. 5). EGRCB system can allow bus to go from one rail to another by using a special design switch (Fig. 10 & 11).